

See amendments to the spec on pgs. 1 and 9 and 13

Amendments to the Specification

Please replace the paragraph beginning at page 1, line 16, with the following rewritten paragraph:

-- The inventors herein have recognized disadvantages with such systems in certain operating condition. Specifically, in some systems, the valve control that provides the desired valve timing is executed with some error during specific operating conditions. Likewise, in valve lift systems, the control that provides the desired lift can also be executed with some error during specific operating conditions. Also, this error can vary widely depending on the operating conditions. Furthermore, by the time this error is measured, or inferred, and used to correct the valve actuation, the cylinder event is already completed, or nearly completed. As such, it is generally available too late to be used to adjust valve timing for that cylinder event to reduce the error.

Please replace the paragraph beginning at page 9, line 1, with the following rewritten paragraph:

-- The output of block 410, *offset(k)*, is provided to block 412. Block 412 reads the offsets, as well as current engine speed and desired valve timing data. The desired valve timing can be based on desired engine torque, desired airflow, or various other parameters, such as engine speed error during idle speed control. Note that the diagram of Figure 4 stores error data as a function of engine speed and desired valve timing, however various other index parameters can be used. For example, data

could be indexed as a function of engine airflow, time since start, valve/engine temperature, fuel injection amount, and/or crank angle. Further, it can be indexed as a function of the number of engine events from an engine start and engine coolant temperature. In this way, it is possible to assign the error measurements to the conditions to which they correlate. ~~so that during future operating conditions which corre--~~

Please replace the paragraph beginning at page 13, line 18, with the following rewritten paragraph:

-- Further, each valve has an opening and closing timing associated with its operation. If both are provided with adaptive learning as shown in Figure 4, the system then has $(F+G)*P*4$ matrices (tables) for offset data storage. As such, to reduce the amount of memory storage, the smallest matrix dimensions and discretization are determined and utilized to allow accurate timing offset storage over all engine-operating conditions while utilizing the lowest amount of memory storage. These dimensions are engine configuration specific and can be determined through experimentation, for example. --